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ABSTRACT

Designed as supplemental material to on-going instruction in the vocational program, this second of three picture dictionary booklets in the Arc Welding series is intended to assist the learning handicapped student to master the core vocabulary taught in the trade. Intended for individual or small group instruction with minimal supervision, this module contains four lessons: (1) Electrode and Electrode Code, (2) Equipment, (3) Welding Tools, and (4) Welding Materials. The format for each lesson includes (1) general directions, with a list of words taught in that lesson, and (2) each word presented on a separate page with a representative picture and simple definition. The module is intended for use with a cassette tape and flash cards.) An alphabetical index to the vocabulary words in the module is given at the back of the booklet. Two other dictionaries in this series are available as CE 024 411 and CE 024 413. An accompanying teacher's manual is available as CE 024 410. (This is one of five series of materials developed by Project HIRE. The two-volume final report of the project is available as CE 024 117 and CE 024 118. See Note for the other series.) (YLB)

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Arc Welding

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Dictionary

CE 024 412

PROJECT HIRE

Arc Welding Dictionary

For Resource Room Instruction

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School of Education

Department of Business
and Career Education
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ARC WELDING II

Equipment/Tools/Materials

Table of Contents

Lesson No.	Lesson	Page No.
5	Electrode and Electrode Code	44
6	Equipment	58
7	Welding Tools	73
8	Welding Materials	84

BOOK II

Lesson 5

Electrode and Electrode Code

ARC WELDING

BOOK II

DIRECTIONS:

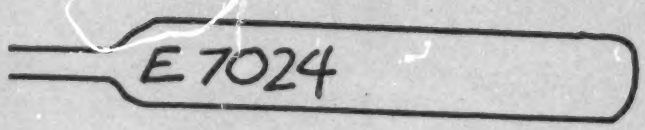
The words in this lesson are:

electrode
filler metal
flux coating
E-stub
electrode code
tensile strength
P.S.I.
position
flat position
horizontal position
overhead position
vertical position
welding position
current

2. Each word has its own page with a picture. Under the picture, you will find the meaning of the word.

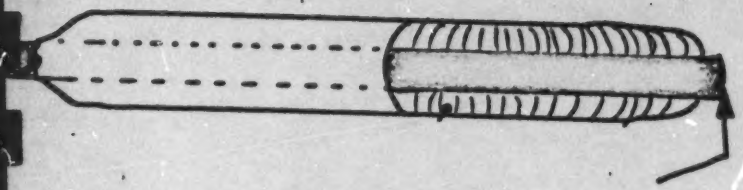
3. Turn the pages and look at the words while you listen.

4. When you get to the last word, turn back to page 44. The tape will say the words again.



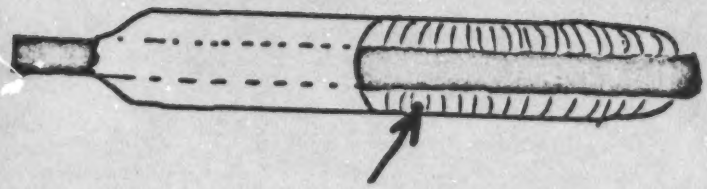
electrode

An electrode is a
metal stick or rod.
It is melted and used
to join pieces of metal.
An electrode is also
called a stinger.



filler metal

Filler metal is the inside of an electrode. Electricity melts the filler metal and it becomes part of the weld.

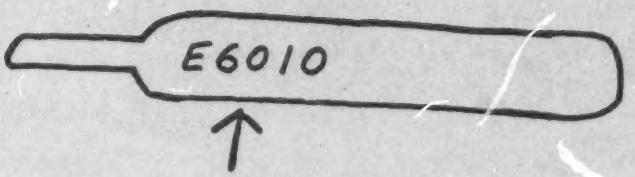


flux coating

Flux coating is the outside of an electrode. The melted flux makes a seal over the weld and protects it as it cools.

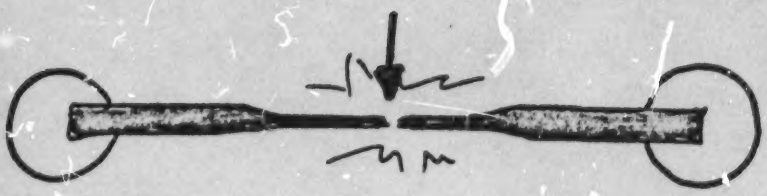
E-stub

An E-stub is a piece of an electrode left over after arc welding.



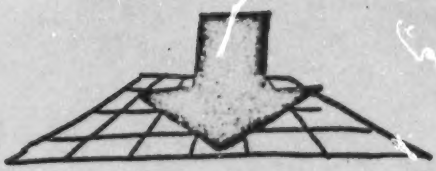
electrode code

An electrode code has the letter E followed by four numbers. The electrode code tells you the way to arc weld.



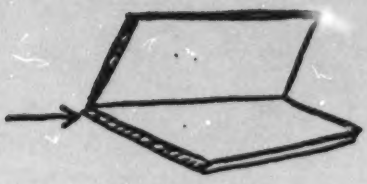
tensile strength

Tensile strength is the amount of pressure a weld can take before it breaks. The tensile strength is shown in the first two numbers of the electrode code.



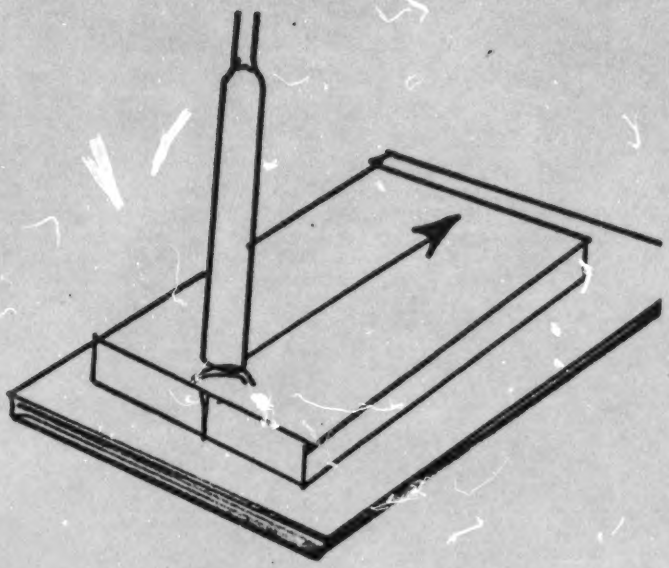
P.S.I.

P.S.I. means the number of pounds of pressure placed on each square inch of metal. The tensile strength of a weld is measured by how many pounds of pressure or P.S.I., a weld can take before it breaks.



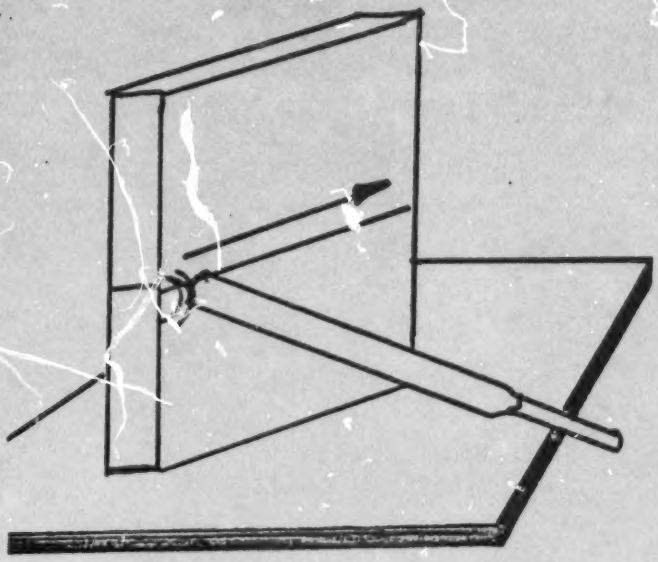
position

Position means the way that two pieces of metal are welded together. The metal pieces must be in the correct welding position before starting to arc weld.



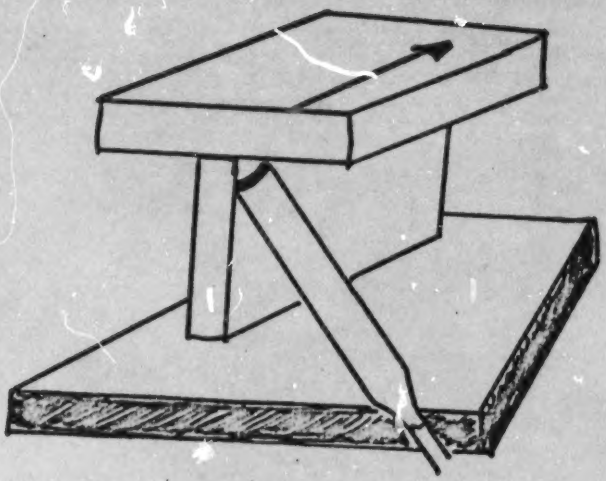
flat position

The flat position means that metal to be welded should lay flat on the table.



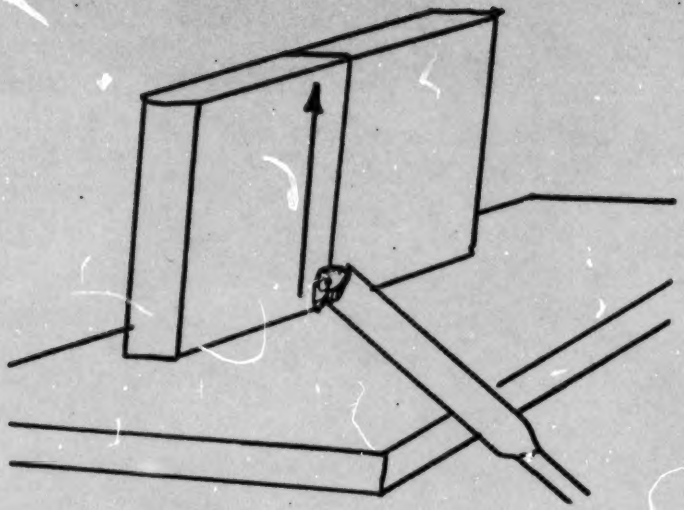
horizontal position

The horizontal position means that the weld goes straight across from one side to the other.



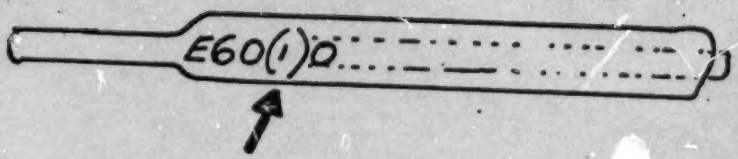
overhead position

The overhead position for welding means that the metal being welded is over your head and you must reach up to weld. It can also mean that the welding is being done from the underside of the joint.



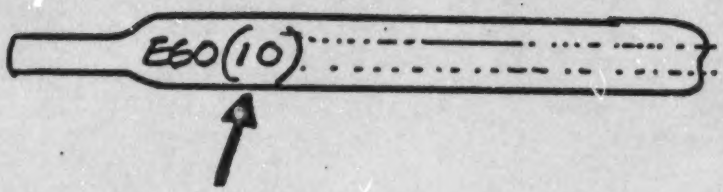
vertical position

The vertical position for welding means that you weld the metal nearest the table first and then weld up the joint.



welding position

The welding positions are flat, horizontal, overhead, and vertical. The third digit in the electrode code tells you what position to use for the weld.



current

Current means the amount of electricity that flows through a wire. The last two numbers of the electrode code tell the kind of current and the kind of coating to use for the weld.

DIRECTIONS CONTINUED:

1. Now you should get cards 44 to 57 from the box.

2. When you have the cards, look at the first picture and see if you know the meaning of the word.

3. Turn the card over and see if you are right.

4. Do the other cards in the same way.

5. If you do not get each one right, listen to the tape again. Then try the cards again.

6. If you do get them all right, ask your teacher for Activity 5. Now rewind this tape and get cards 44 to 57.

BOOK II

Lesson 6

Equipment

ARC WELDING

BOOK II

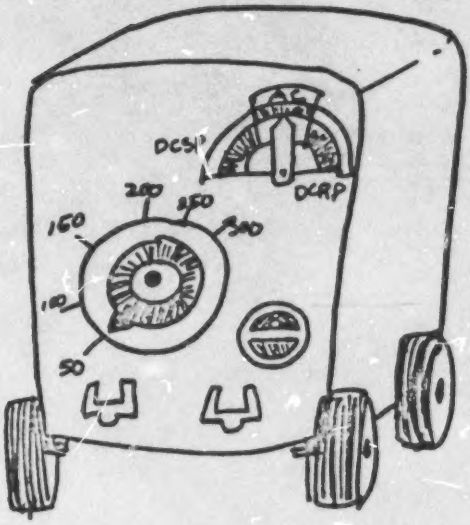
DIRECTIONS:
The words in this lesson are:

arc welding machine
polarity switch
current control
DC reverse polarity
A.C.
on-off switch
electrode cable
electrode cable connector
ground cable
ground cable connector
ground clamp
power cable
welding table
E-holder

2. Each word has its own page with a picture. Under the picture, you will find the meaning of the word.

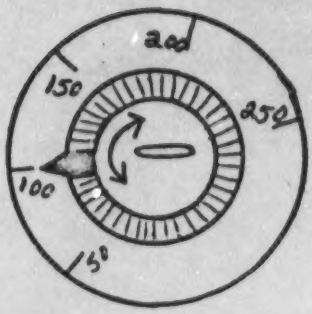
3. Turn the pages and look at the words while you listen.

4. When you get to the last word, turn back to page 58. The tape will say the words again.



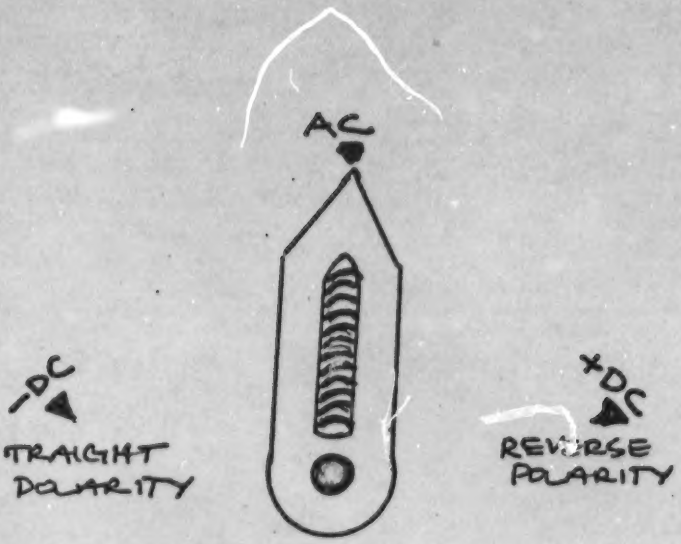
arc welding machine

An arc welding machine uses electricity. The heat from the electricity melts an electrode and the melted electrode joins pieces of metal together.



current control

The current control on the arc welding machine turns to point at different numbers that tell how much electric current is coming through the machine.

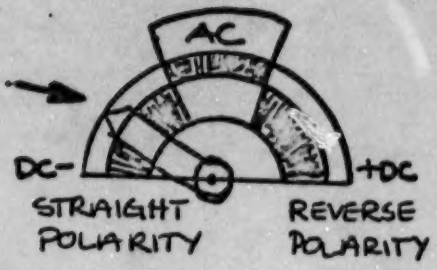


polarity switch

The polarity switch on the arc welding machine should point to the kind of electric current you need for the welding job.

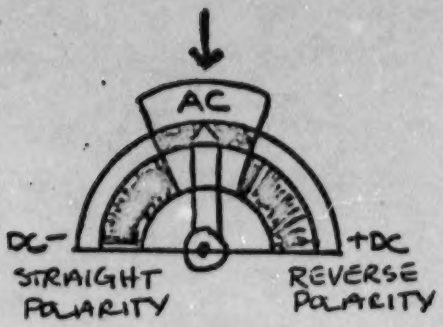
DC reverse polarity

DC reverse polarity is the kind of electric current that is most often used in arc welding. When you use DC reverse polarity, the electrode is hotter than the work piece.



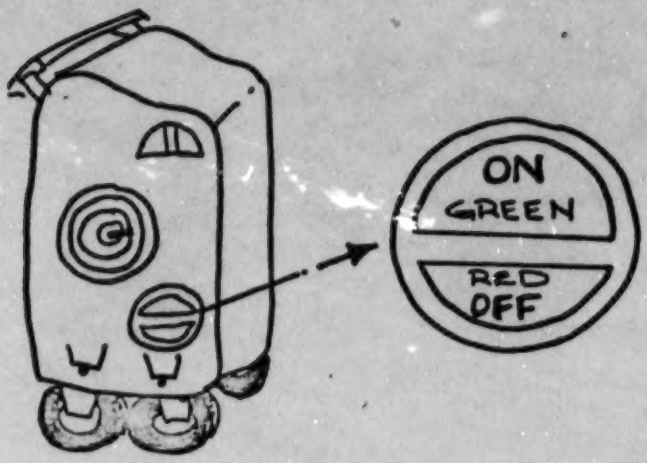
DC straight polarity

DC straight polarity is a kind of electric current. When you use DC straight polarity, the work piece is hotter than the electrode.



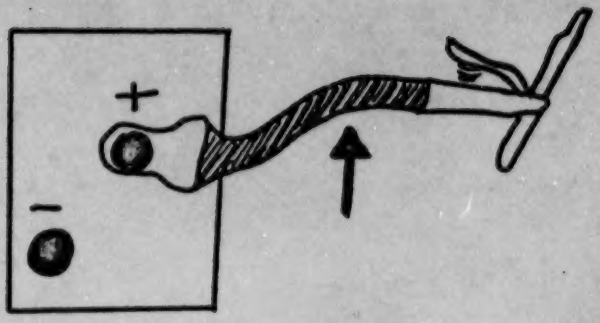
A.C.

A.C. means alternating current. It is a kind of electric current. When you use A.C., the heat is spread evenly between the work piece and the electrode.



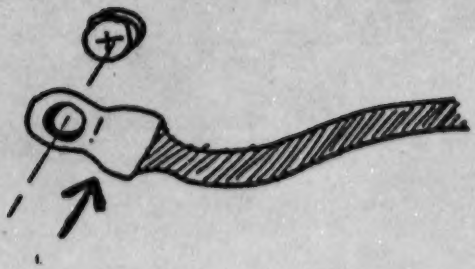
on-off switch

The on-off switch on the arc welding machine starts and stops the electricity. It has two buttons. The top button is green. It starts the machine. The button on the bottom is red. It stops the machine.



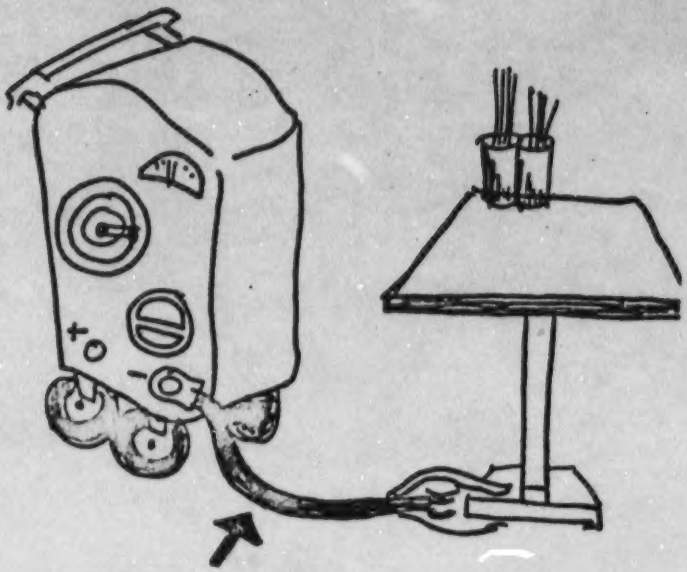
electrode cable

An electrode cable is the wire going from the arc welding machine to the electrode holder. The electrode cable brings the electricity from the machine to the pieces to be welded.



electrode cable connector

An electrode cable connector is a round copper washer that fits onto the end of the electrode cable. The electrode cable connector must be connected to the positive (+) outlet on the machine.



ground cable

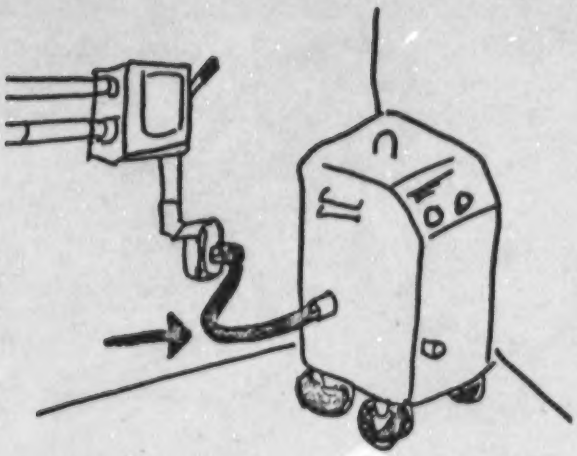
A ground cable is made of insulated wires. It must be connected to both the arc welding machine and to the work table.

ground cable connector

A ground cable connector is a round, copper washer which fits onto the end of the ground cable. The ground cable connector must be connected to the negative(-) outlet on the machine.

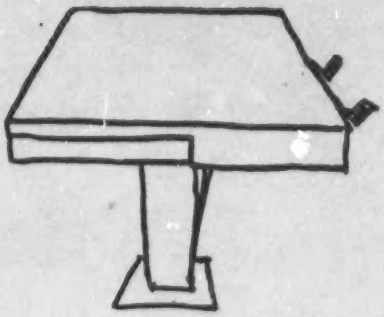
ground clamp

A ground clamp is a tool that connects the ground cable to the metal being arc welded.



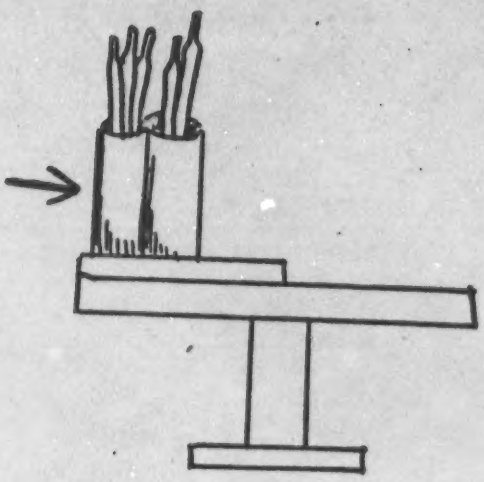
power cable

A power cable is an insulated cord used to bring electric power from the switch box to the welding machine.



welding table

A welding table is a steel table used in welding.



E-holder

An E-holder is a stand used to place the electrode on. Always return the electrode to the E-holder when arc welding is done.

DIRECTIONS CONTINUED:

1. Now you should get cards 58 to 72 from the box.

2. When you have the cards, look at the first picture and see if you know the meaning of the word.

3. Turn the card over and see if you are right.

4. Do the other cards in the same way.

5. If you do not get each one right, listen to the tape again. Then try the cards again.

6. If you do get them all right, ask your teacher for Activity 6. Now rewind this tape and get cards 58 to 72.

BOOK II

Lesson 7

Welding Tools

ARC WELDING

BOOK II

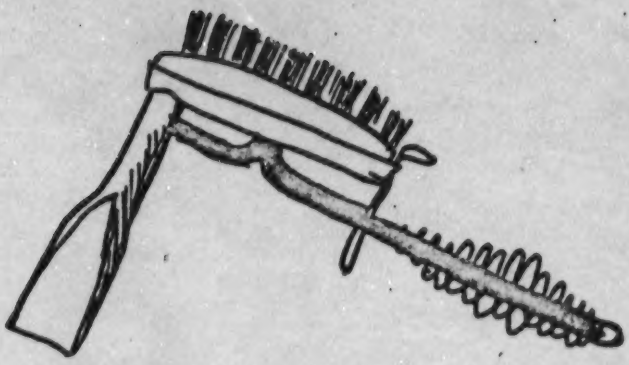
IRECTIONS:
The words in this lesson are:

hand chipping hammer
chisel
cleaning brush
C-clamp
center punch
pein
ballpein hammer
disc grinder
power cleaning brush
air chipping hammer
tongs

2. Each word has its own page with a picture. Under the picture, you will find the meaning of the word.

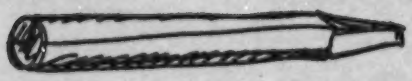
3. Turn the pages and look at the words while you listen.

4. When you get to the last word, turn back to page 73. The tape will say the words again.



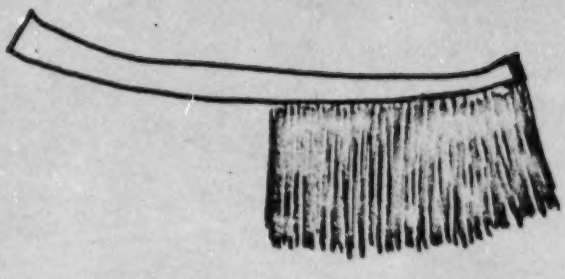
hand chipping hammer

A hand chipping hammer is a tool used to remove slag from a finished weld.



chisel

A chisel is a flat steel cutting tool with a sharp edge and a handle A chisel is used to remove metal spatter that has welded itself to the metal work pieces.



cleaning brush

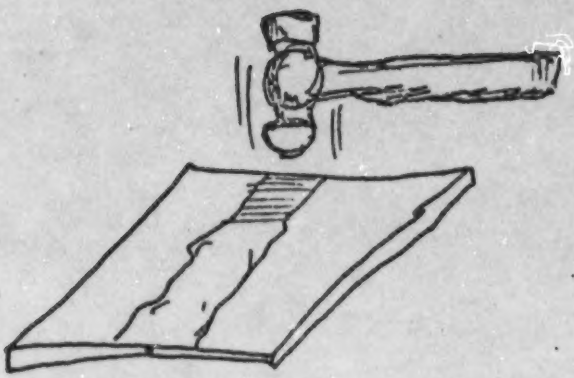
A cleaning brush is a wire brush that is used to clean slag from a finished weld.

C-clamp

A C-clamp is a device used to hold metal firmly for welding.

center punch

A center punch is a small tool with a round edge used for making punch marks for drilling.



pein

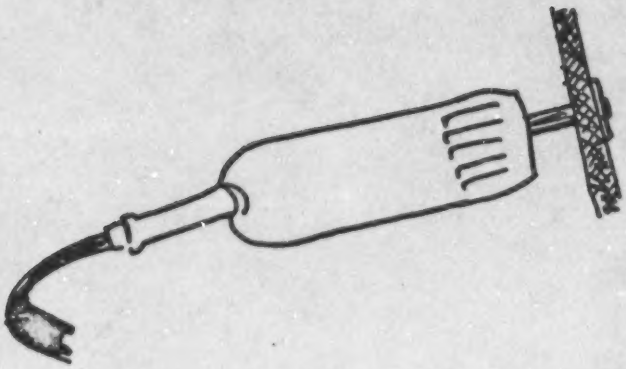
Pein means to hammer a finished weld to remove bumps.

ballpein hammer

A ballpein hammer is a hammer that has a head with a flat end and a round end. The ballpein hammer is used to pein welds.

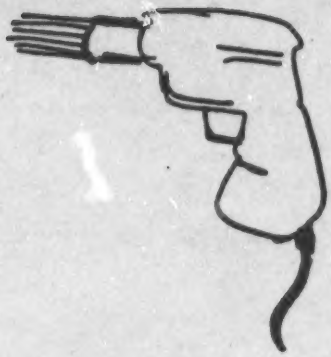
disc grinder

A disc grinder is a hand-held power tool that is used to grind welds to a flat finish.



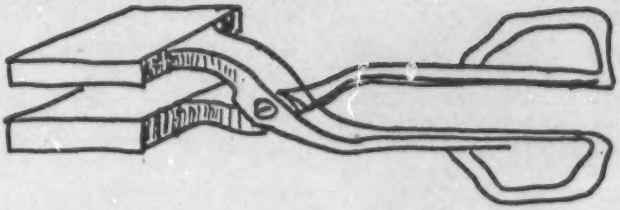
power cleaning brush

A power cleaning brush is a thick round brush that is turned by an electric motor. It is used to remove slag, spatter or rust from a weld.



air chipping hammer

An air chipping hammer is a power tool used to remove slag from a finished weld.



tongs

Tongs are used to pick up hot welded metal pieces.

-83-

DIRECTIONS CONTINUED:

1. Now you should get cards 73 to 83 from the box.

2. When you have the cards, look at the first picture and see if you know the meaning of the word.

3. Turn the card over and see if you are right.

4. Do the other cards in the same way.

5. If you do not get each one right, listen to the tape again. Then try the cards again.

6. If you do get them all right, ask your teacher for Activity 7. Now rewind this tape and get cards 73 to 83.

BOOK II

Lesson 8

Welding Materials

ARC WELDING

BOOK II

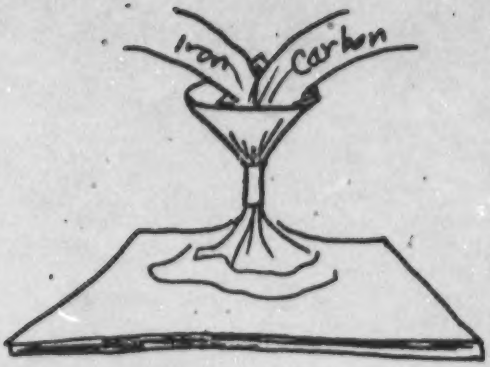
DIRECTIONS:
The words in this lesson are:

alloyed steel
cold roll steel
hot roll steel
galvanized steel
high carbon steel
low carbon steel
aluminum

2. Each word has its own page with a picture. Under the picture, you will find the meaning of the word.

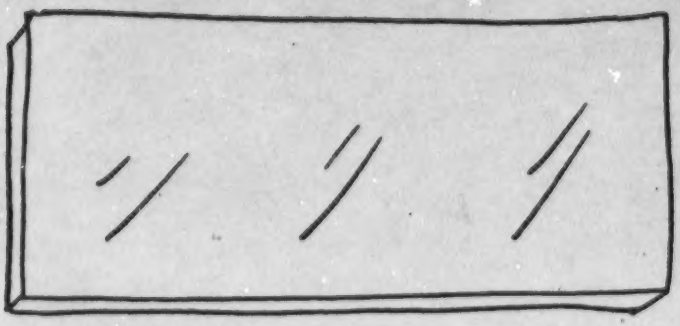
3. Turn the pages and look at the words while you listen.

4. When you get to the last word, turn back to page 84. The tape will say the words again.



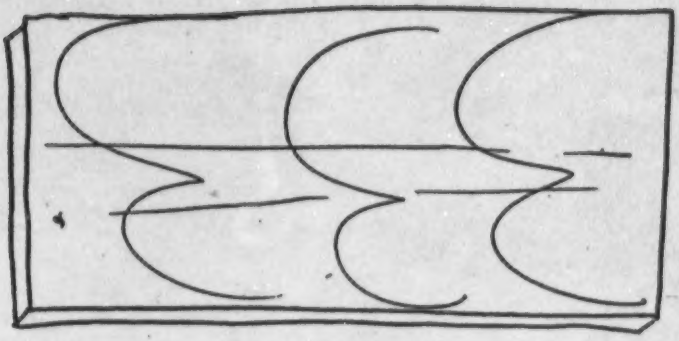
alloyed steel

Alloyed steel is steel made from mixing iron with certain amounts of carbon.



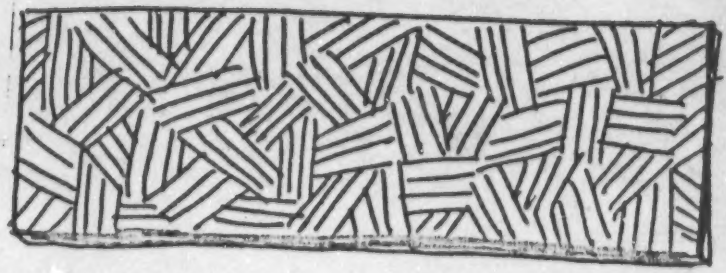
Cold roll steel

Cold roll steel is steel that is rolled while it is cold. Cold roll steel has a clean finish.



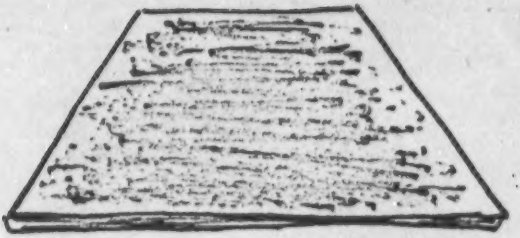
hot roll steel

Hot roll steel is steel that is rolled while it is hot and it has a thin blue finish.



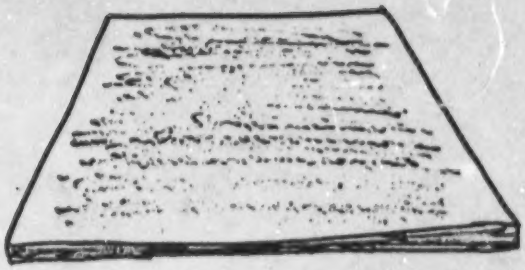
galvanized steel

Galvanized steel is steel which is covered in zinc.



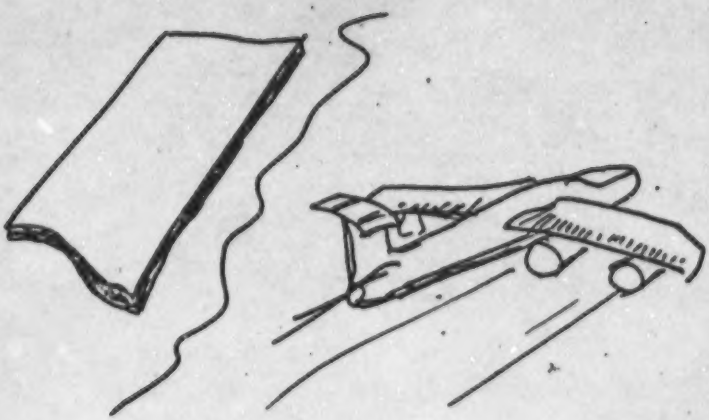
high carbon steel

High carbon steel is steel which has a large amount of carbon.



low carbon steel

Low carbon steel is steel that has only a little carbon in it.



aluminum

Aluminum is a metal that is silvery white in color and is very light weight.

DIRECTIONS CONTINUED:

1. Now you should get cards 84 to 90 from the box.

2. When you have the cards, look at the first picture and see if you know the meaning of the word.

3. Turn the card over and see if you are right.

4. Do the other cards in the same way.

5. If you do not get each one right, listen to the tape again. Then try the cards again.

6. If you do get them all right, ask your teacher for Activity 8. Now rewind this tape and get cards 84 to 90.

ARC WELDING II

Equipment/Tools/Materials

Alphabetical Index

	Vocabulary Word	Page No.
A	A.C.	63
	air chipping hammer	82
	alloyed steel	84
	aluminum	90
	arc welding machine	58
B	ballpein hammer	79
C	C-clamp	76
	center punch	77
	chisel	74
	cleaning brush	75
	cold roll steel	85
	current	57
	current control	59
D	DC reverse polarity	61
	DC straight polarity	62
E	E-holder	72
	E-stub	47
	electrode	44
	electrode cable	65

electrode cable connector 66

electrode code 48

F filler metal 45

flat position 52

flux coating 46

G galvanized steel 87

ground cable 67

ground cable connector 68

ground clamp 69

H hand chipping hammer 73

high carbon steel 88

horizontal position 53

hot roll steel 86

L low carbon steel 89

O on-off switch 64

overhead position 54

P pein 78

P.S.I. 50

polarity switch 60

position 51

power cable 70

power cleaning brush . . 89. 81

T tensile strength 49
tongs 83
V vertical position 55
W welding position 56
welding table 71

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